TECHNICAL MEMORANDUM
MARITIME ARCHAEOLOGY DESKTOP ANALYSIS
GULF COAST PARKWAY
BAY, GULF, AND CALHOUN COUNTIES, FLORIDA

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CLIENT: Florida Department of Transportation, District 3
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In October 2012, Southeastern Archaeological Research, Inc. (SEARCH) completed a maritime archaeology desktop evaluation in support of the alternatives analysis for the Gulf Coast Parkway Project Development and Environment (PD&E) Study in Bay, Gulf, and Calhoun Counties, Florida (**Figure 1**). The project area consists of five alternative routes (Alternatives) for a proposed new highway that will connect US 98 in Gulf County and US 231 in Bay County.

The Area of Potential Effect (APE) defines the area within which any visual, audible, and atmospheric effects that the proposed construction project may have to historic properties will be considered. The APE defined for this project is an approximately 304.8-meter (1,000-foot) buffer centered on each crossing over a perennial water body.

SEARCH conducted the maritime study on behalf of the Florida Department of Transportation (FDOT), District 3, in order to identify any submerged cultural resources that are listed, or may be eligible for listing, in the National Register of Historic Places (NRHP). The Florida Master Site File (FMSF) database was reviewed for any previous surveys or previously recorded resources. In addition, SEARCH conducted a review of in-house databases relative to potential submerged cultural resources within the APE. The databases reviewed include:

- The National Oceanic and Atmospheric Administration (NOAA) Automated Wreck and Obstruction Information System (AWOIS);
- NOAA's Electronic Navigational Charts (ENC);
- 2006 NOAA Aids to Navigations (NavAids) and the 2007 US Coast Guard (USCG) Hazards to Navigation database; and
- The Global Maritime Wrecks Database (GMWD).

After completing the database review, SEARCH developed a predictive model based on archaeological, navigational, and other relevant data. Each Alternative was analyzed for its overall potential to contain submerged cultural resources. Recommendations are based on both the background research and the predictive model.

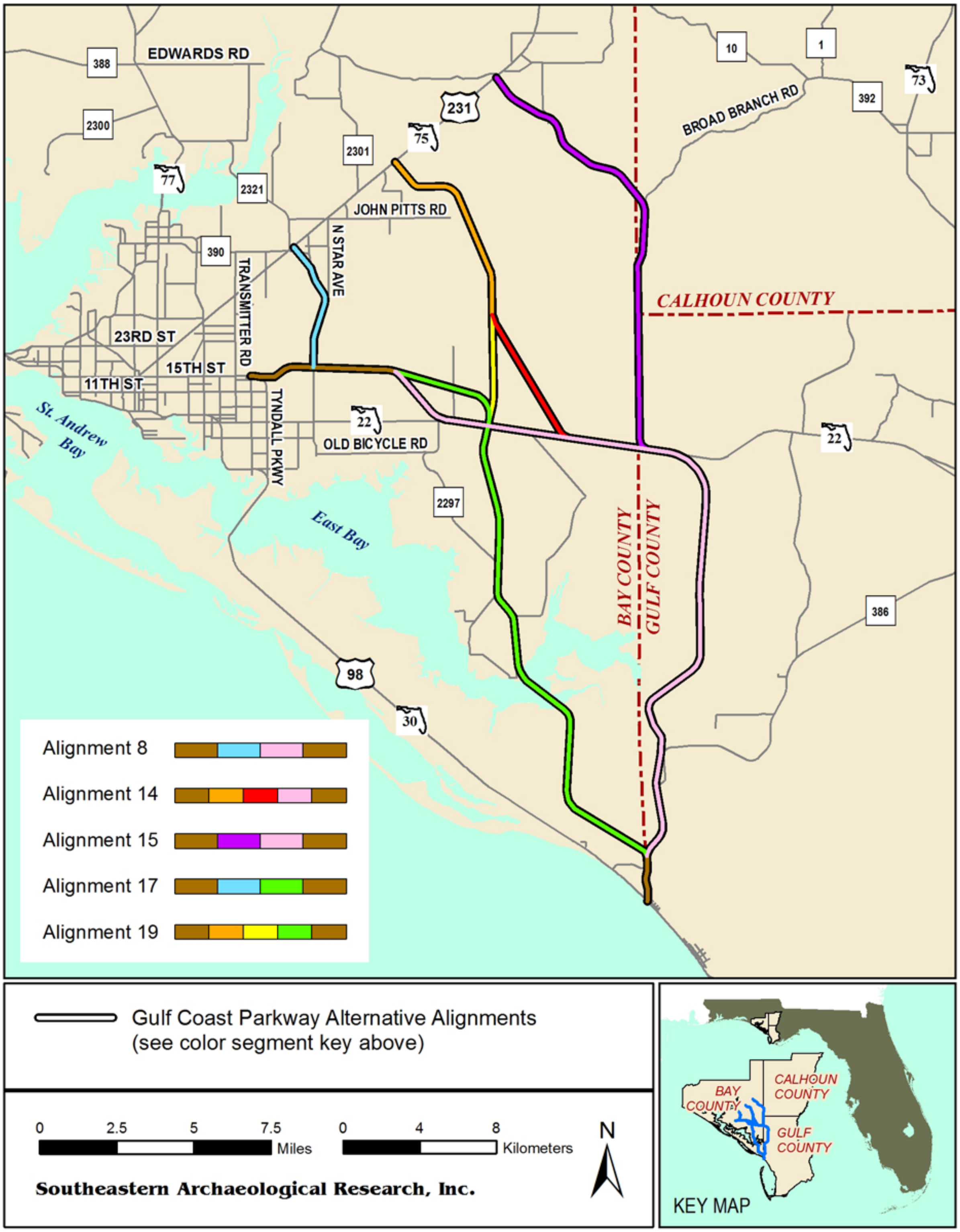

Figure 1. Project area location including the five Alternatives.

PROJECT ENVIRONMENT

The proposed Gulf Coast Parkway Project is located in southeastern Bay County, northwestern Gulf County, and southwestern Calhoun County, just southeast of the Panama City limits. Land use within the overall project area is primarily related to agriculture, with scattered residential developments. Water bodies within the project area consist mainly of small perennial drainages, though a portion of the East Bay is also included.

HISTORIC CONTEXT

This historic context is intended to provide a general overview of the history of the multi-county region (Bay, Gulf, and Calhoun Counties) in which the Gulf Coast Parkway project area is located. The first Europeans to make contact along the northern Gulf Coast included Spain during the early sixteenth century. The Spanish claimed present-day Florida and much of the southeast for Spain; however, no permanent settlements were established in the area. Instead, the Spanish focused colonization efforts at what is now St. Augustine and Pensacola.

Other Europeans challenged Spain's claim to Florida during the seventeenth and eighteenth centuries. In 1717, the French established a small fort at a site that historians believe was located at Mexico Beach in coastal Bay County or Port St. Joe in Gulf County (Hutchinson n.d.). Dubbed Fort Crevecoeur, the establishment of this fort angered the Spanish. However, not long after the fort was established, the French chose to abandon the position and instead focus on the Mississippi coastal region.

By the mid-eighteenth century, Great Britain proved to be the strongest force in the region. The British acquired Florida in 1763 and began to carefully map extensive sections of the Gulf Coast region (Ware 1982:14). In 1766, Florida's west coast was surveyed from Pensacola to Cape San Blas, including St. Andrews Bay, which lies to the east and the south of the current project area. The cartographer George Gauld considered the extensive harbor of St. Andrews Bay to be of limited importance to the British Navy because of its sandbars and narrow channels (Ware 1982:64). Regardless, British settlers are believed to have found the area useful. Between 1780 and 1783, the British reportedly built a settlement in what is now Bay County at a town called Wells, although some historians dispute this claim (Womack 1994). Wells is thought to have been located where Panama City is today.

Spain regained the Florida territory in 1783 and held it until 1821, but established no settlement in the area. The panhandle, with the exception of the Pensacola area, was not economically developed until after it became an American territory in 1821. The first towns of Bay Head, Econfina, and Old Town (St. Andrews) were founded in the 1820s. When Florida became an American territory, this area was part of Escambia County. Through the nineteenth and early twentieth centuries, the state legislature approved the creation of new counties that included the project area: Jackson (1822), Washington (1825), and Bay (1913).

John Lee Williams, a Pensacola lawyer who wrote about the Florida Territory in the 1820s, described the area. “It is a misshapen tract of worthless land, in general,” he wrote. “This county acknowledges no civil authorities, nor laws. It owes its origin to political quackery alone.” Williams provided exception to his “worthless land” view, including a “few hammocks on St. Andrew’s bay, the south edges of Oak and Hickory hills, a part of Holmes valley, and the borders of Econfina river” (Williams 1976:86 [1827]).

Early nineteenth-century industries in the panhandle of Florida included indigo, naval stores, fishing, and salt making. Timber milling was the major industry in the Bay County area after the first sawmill was built on Watson Bayou, west of Panama City, in 1836. This led to the growth of a community called Millville (Womack 1994). Fishermen were active on St. Andrews Bay and Easy Bay throughout the nineteenth and twentieth centuries.

By the Civil War (1861–1865), the region remained a sparsely populated wilderness (State of Florida 1945:10). The main settlements, including Vernon (founded in the 1850s), were located primarily inland. Much of panhandle Florida, including what is now Bay County and its neighboring counties, became a haven to Confederate deserters, who could pass unnoticed through the backwoods (Johns 1963:161). Sometimes the deserters joined forces, becoming armed groups that disrupted the Union Army’s postal service, destroyed railroad trestles, burned bridges, and cut telegraph lines (Johns 1963:164).

Union Brigadier General Alexander Asboth reported on an expedition through the area in September 1864 (US War Department 1891:443–445). Asboth, along with 700 men, marched from Pensacola to Marianna. Along the way, Asboth destroyed Douglass Ferry on the Choctawhatchee River. After defeating the Confederates at Marianna, the Union troops returned through the area, sacking the small inland towns of Orange Hill and Vernon (Askew 1967).

The area remained rural in the post-Civil War era, although there were notable advancements in the period, including the establishment of 12 schools in the area. Constructed through the county in 1882, the Pensacola and Atlantic Railroad provided transportation to the central part of the county. The Choctawhatchee River provided the primary transportation for agricultural, timber, and naval resources prior to the railroad’s arrival. To a lesser degree, this maritime traffic plied the waters of Easy Bay (Lanier 1973:150 [1875]; Webb 1885:114). Beeswax and honey were also produced. The county’s farmers began experimenting in sheep farming. Land in the county ranged from $1 to $10 an acre, and the average farmer paid $5 to $10 an acre to have the property cleared. Two water-powered and three steam-powered sawmills operated in the area (Robinson 1882:186).

Wanton Webb, a promoter of Florida settlement, stated that area residents at the time were “noted for their hospitality, and will extend a hearty welcome to all strangers, irrespective of political opinion, who come to seek homes and who are honest and industrious” (Webb 1885:114). The primary communities during the 1880s were Caryville, with a population of 50; Chipley, with a population of 300; Miller’s Ferry, with a population of 50; and Vernon, for which

Webb provided no population data (Webb 1885:114). The primary exports by the 1880s were cotton, timber, and cattle (Norton 1892:101).

The timber industry flourished in the 1880s when railroads began to reach the region. Water transport of timber thereby became less common. The St. Andrews Lumber Company reestablished the mill on Watson Bayou, and the town of Millville was resettled (Womack 1994). The West Bay Lumber and Naval Stores Company attracted settlers to the town of West Bay in 1890. Two major railroads reached St. Andrews Bay in 1908, greatly expanding the fish and timber markets.

The largest timber company in the region was the German-American Lumber Company. This German-American alliance ceased with the outbreak of World War I, and the company was subsequently bought by the St. Andrews Bay Lumber Company (Womack 1994). The largest economic contributors to the region were naval stores companies. The McKenzie and Vickers Turpentine Company was one of the largest in the area, maintaining four stills, including one at Burnt Mill Creek (Womack 1998). The St. Andrews Bay region was one of the largest naval-stores-producing areas in the United States in the early twentieth century.

Panama City was platted on the shores of St. Andrews Bay in 1905. George W. West founded the city and gave the town its name because it was in a direct line between Chicago and the Panama Canal Zone (Morris 1995:190). Present-day Bay County was formed in 1913 (Carswell 1991:30), and by 1913 paper mills opened near the mouth of St. Andrews Bay. The first municipal airport in Bay County opened in 1938.

World War II bolstered the economy of the area and the panhandle as a whole. The federal government contracted with Panama City's Wainwright Company to build ships for the war effort. During the war years, the company employed 15,000 workers, nearly doubling the population of the county. Wainwright constructed approximately 108 ships during the period (Mormino 1996:328). Tyndall Air Field opened in January 1941 as a gunnery range, and thousands trained at the field during the war. In 1948, it became known as Tyndall Air Force Base. Panama City Beach and the coastal communities of Bay County were developed as tourist destinations by the 1950s. The lands north of St. Andrews Bay are still relatively undeveloped, with large tracts of state forests and state wildlife management areas.

CULTURAL RESOURCE ANALYSIS

Previous cultural resource surveys were reviewed for each Alternative, including the presence of previously recorded submerged cultural resources. Each Alternative is presented separately, with individual water crossings identified and any associated cultural resources listed.

Alternative 8

Alternative 8 crosses nine different perennial drainages throughout the project area (**Table 1; Figure 2**). No previous cultural resource surveys were identified within the APE of Alternative 8. No submerged cultural resources have been recorded within the APE of Alternative 8.

Table 1. Water Crossings on Alternative 8 and Identified Cultural Resources.

Water Body	Identified Cultural Resources
Boggy Creek	None
Callaway Creek	None
Cooks Bayou	None
Gude Branch	None
Horseshoe Creek	None
Joe Lamb Branch	None
Little Sandy Creek	None
Sandy Creek	None
Wetappo Creek	None

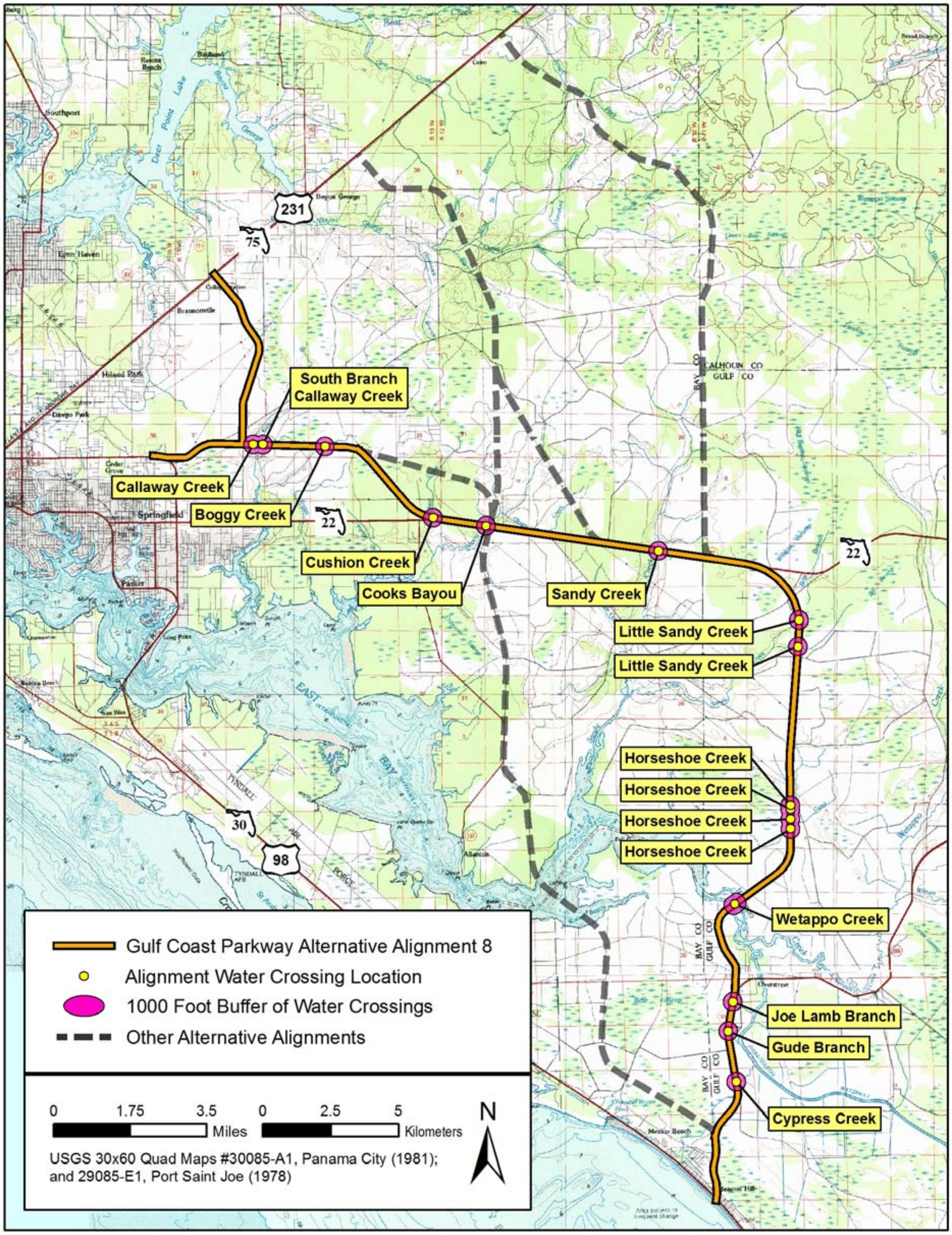

Figure 2. Alternative 8 alignment and associated water crossing locations.

Alternative 14

Alternative 14 crosses 13 different perennial drainages throughout the project area (**Table 2; Figure 3**). No previous cultural resource surveys were identified within the APE of Alternative 14. No submerged cultural resources have been recorded within the APE of Alternative 14.

Table 2. Water Crossing on Alternative 14 and Identified Cultural Resources.

Water Body	Identified Cultural Resources
Bayou George Creek	None
Beefwood Branch	None
Big Branch	None
Boggy Creek	None
Callaway Creek	None
Cooks Bayou	None
Gude Branch	None
Horseshoe Creek	None
Joe Lamb Branch	None
Little Sandy Creek	None
Olivers Creek	None
Sandy Creek	None
Wetappo Creek	None

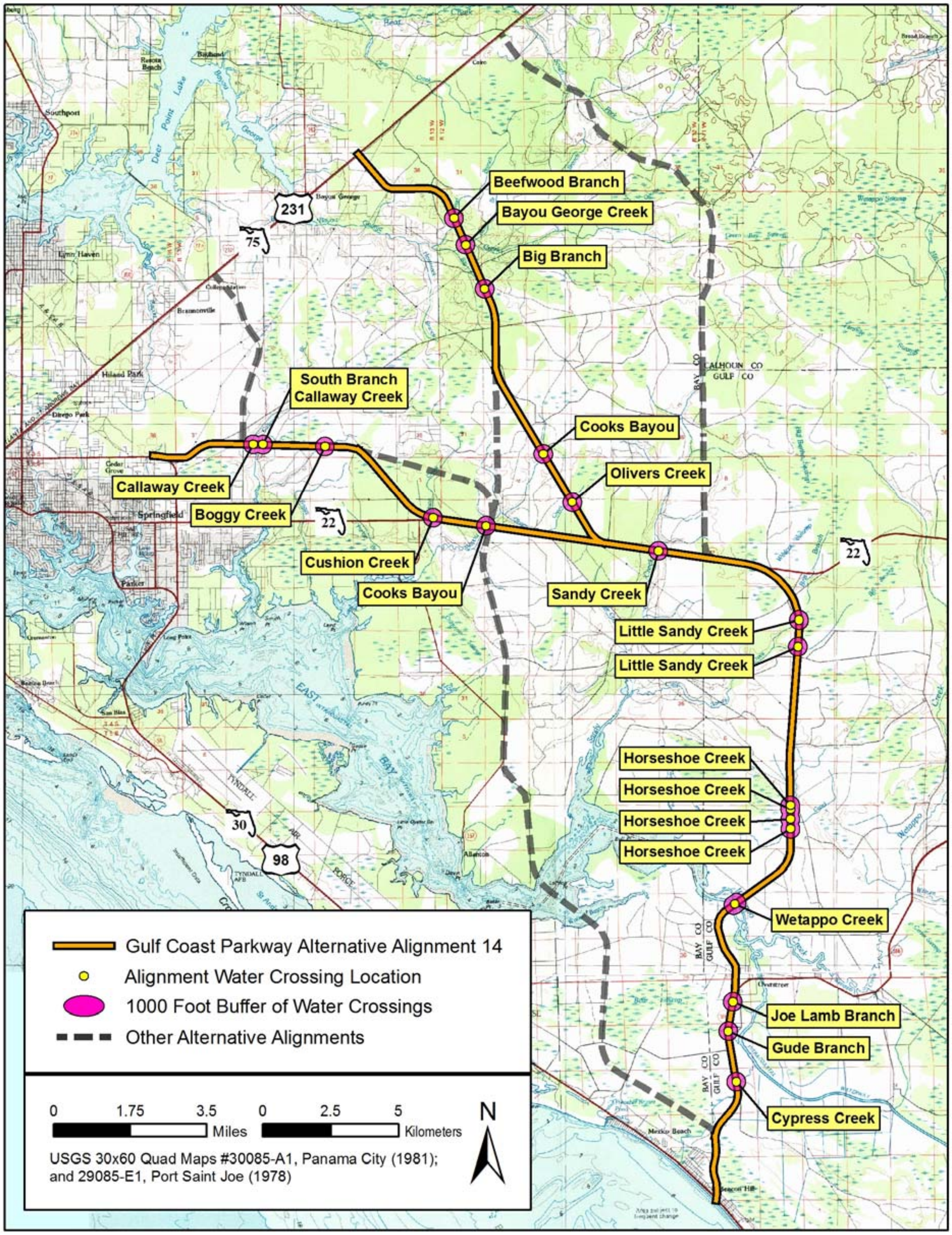

Figure 3. Alternative 14 alignment and associated water crossing locations.

Alternative 15

Alternative 15 crosses nine different perennial drainages throughout the project area (**Table 3; Figure 4**). No previous cultural resource surveys were identified within the APE of Alternative 15. No submerged cultural resources have been recorded within the APE of Alternative 15.

Table 3. Water Crossings on Alternative 15 and Identified Cultural Resources.

Water Body	Identified Cultural Resources
Boggy Creek	None
Callaway Creek	None
Cooks Bayou	None
Gude Branch	None
Horseshoe Creek	None
Joe Lamb Branch	None
Little Sandy Creek	None
Sandy Creek	None
Wetappo Creek	None

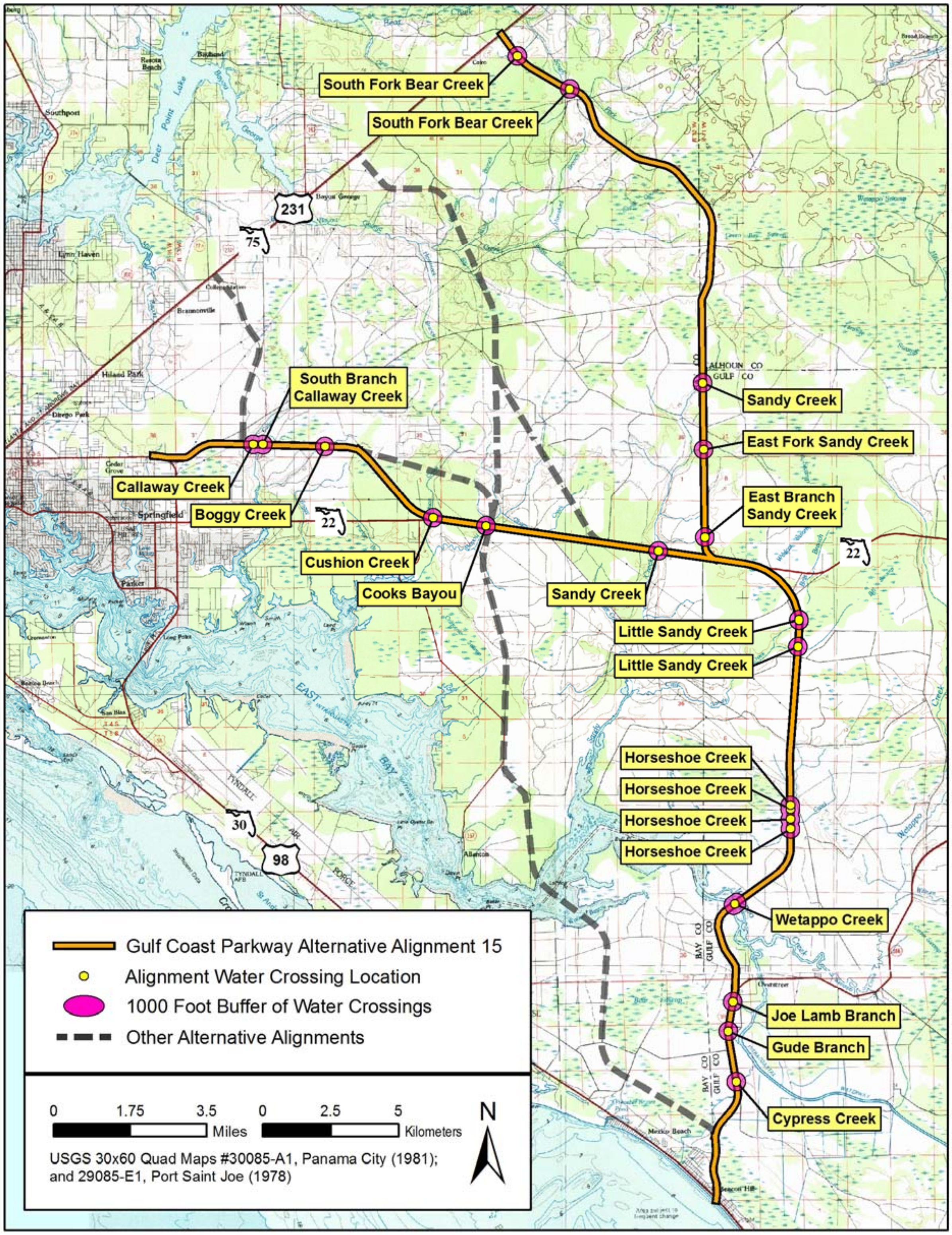

Figure 4. Alternative 15 alignment and associated water crossing locations.

Alternative 17

Alternative 17 crosses four different perennial drainages throughout the project area (**Table 4; Figure 5**). No previous cultural resource surveys were identified within the APE of Alternative 17. One potential submerged cultural resource was identified within the APE of Alternative 17 (**Figure 6**). The resource is recorded as a "Dangerous Wreck" and a "25 ft fishing vessel" on NOAA's Electronic Navigational Charts. Based on further background research, it is SEARCH's opinion that the vessel is modern and is therefore not culturally significant.

Table 4. Water Crossings on Alternative 17 and Identified Cultural Resources.

Water Body	Identified Cultural Resources
Boggy Creek	None
Callaway Creek	None
Cooks Bayou	None
East Bay	Unnamed fishing vessel

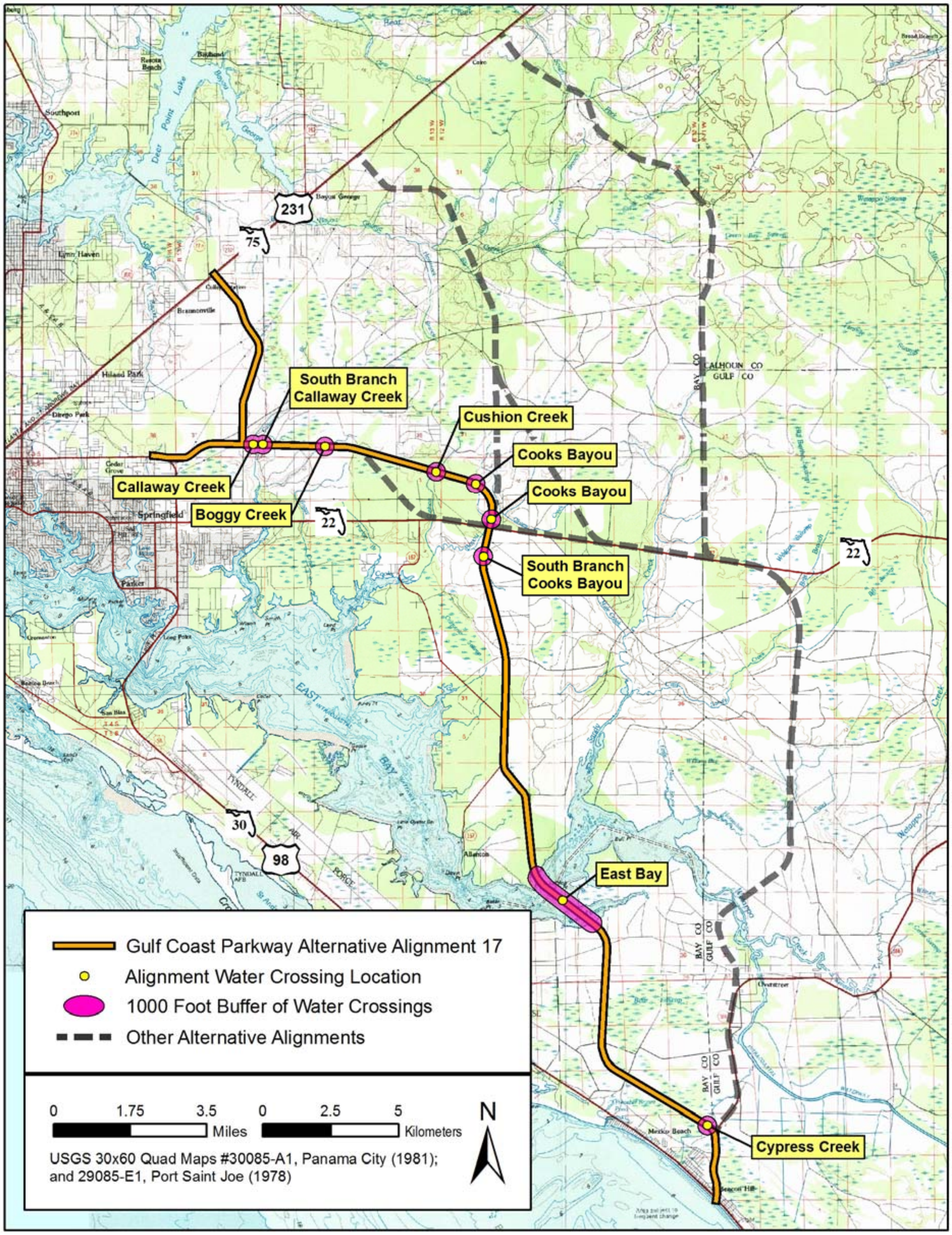

Figure 5. Alternative 17 alignment and associated water crossing locations.

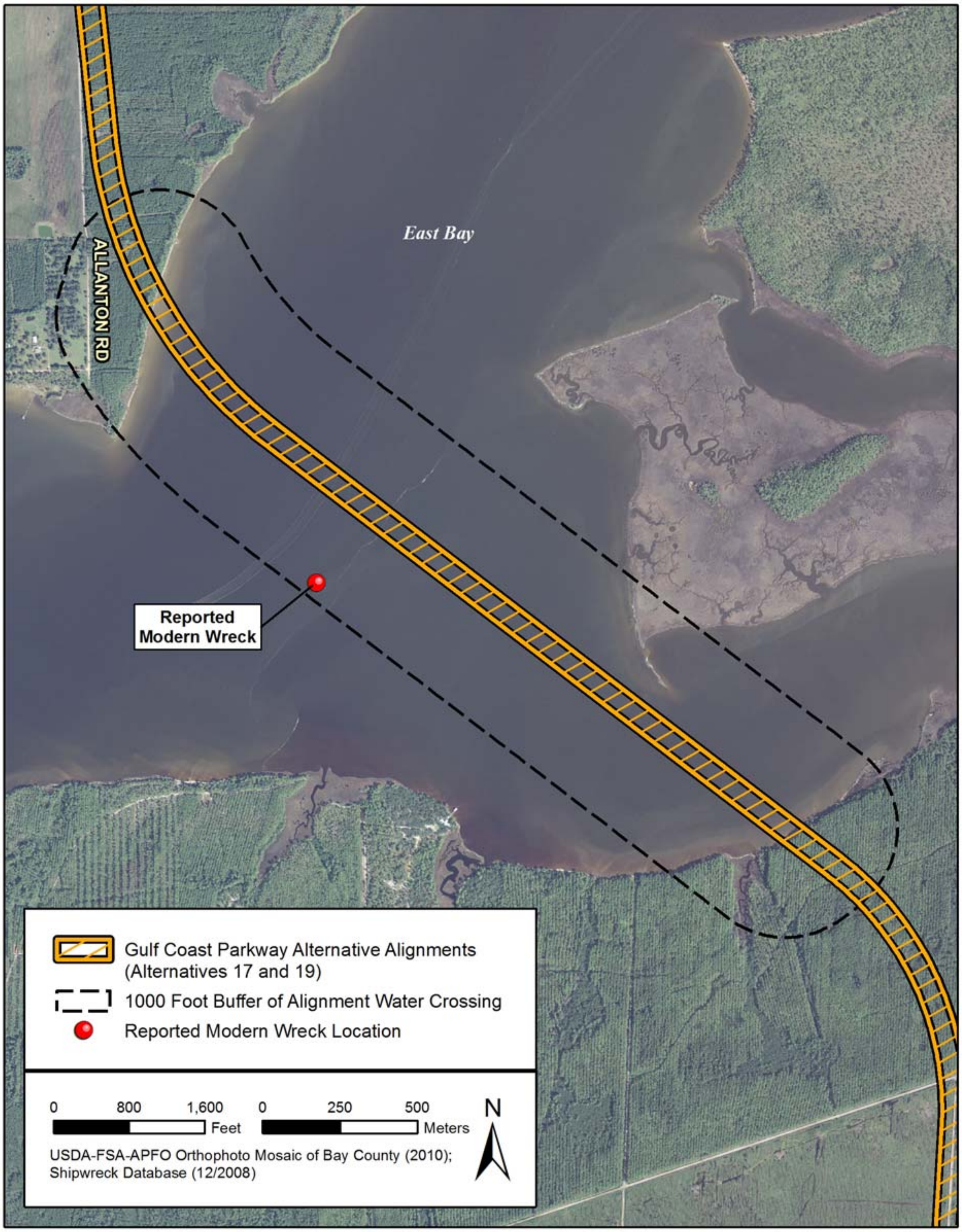

Figure 6. Shipwreck location within APE of Alternatives 17 and 19 (as reported by NOAA's Electronic Navigational Charts).

Alternative 19

Alternative 19 crosses seven different perennial drainages throughout the project area (**Table 5; Figure 7**). No previous cultural resource surveys were identified within the APE of Alternative 19. One potential submerged cultural resource was identified within the APE of Alternative 19 (see **Figure 6**). The resource is recorded as a “Dangerous Wreck” and a “25 ft fishing vessel” on NOAA’s Electronic Navigational Charts. This resource is the same shipwreck that was identified on Alternative 17 (discussed above). Based on further background research, it is SEARCH’s opinion that the vessel is modern and is therefore not culturally significant.

Table 5. Water Crossings on Alternative 19.

Water Body	Associate Cultural Resources
Bayou George Creek	None
Beefwood Branch	None
Big Branch	None
Boggy Creek	None
Callaway Creek	None
Cooks Bayou	None
East Bay	Unnamed fishing vessel

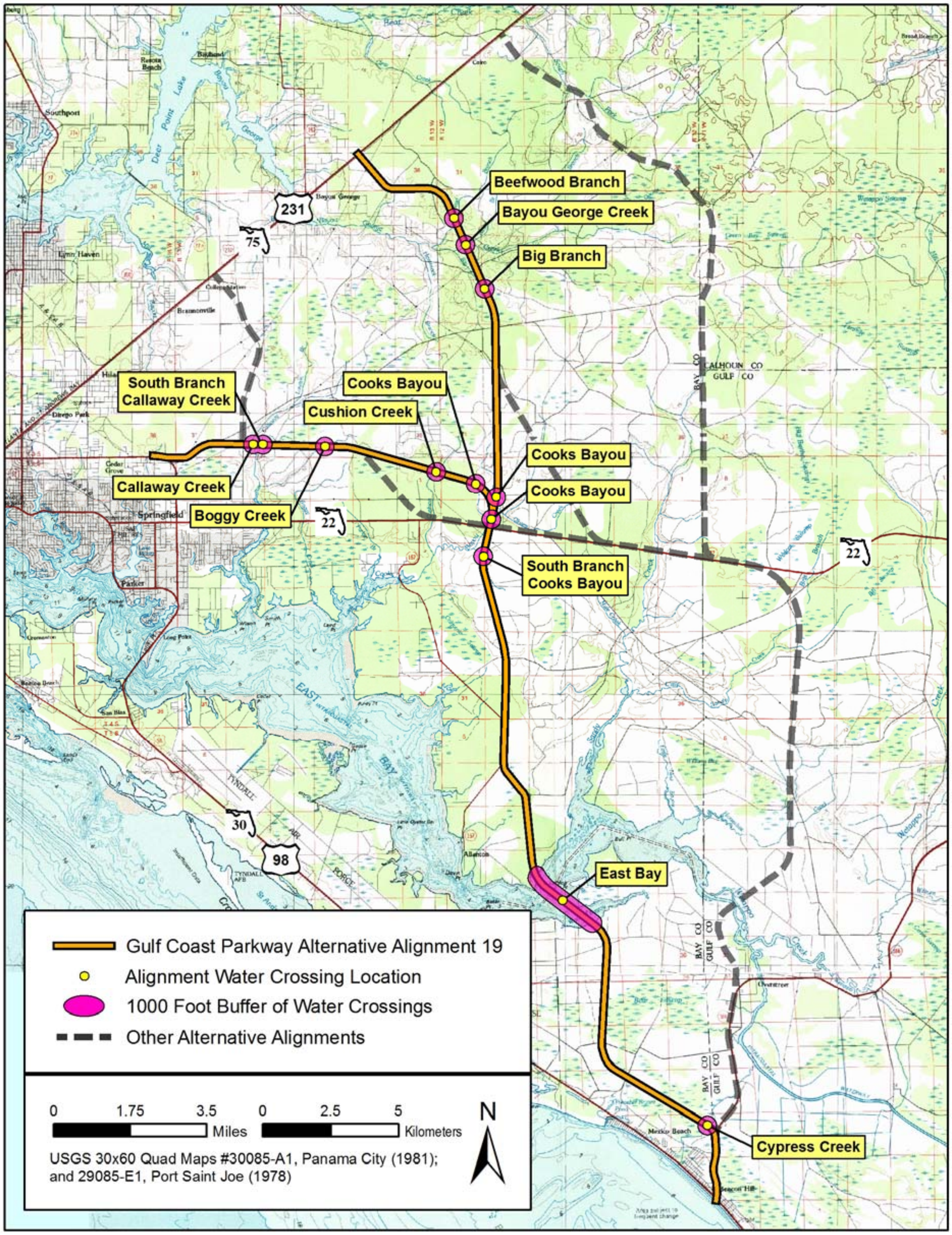

Figure 7. Alternative 19 alignment and associated water crossing locations.

PREDICTIVE MODELING

A predictive model can assist in determining the probability of shipwrecks within a given area by applying a set of established criteria. The patterning and distribution of shipwrecks lost in the open sea versus those lost near shore has been addressed by numerous authors. These include Bascom (1971), Coastal Environments, Inc. (1977), Garrison et al. (1989), Marx (1971), and Muckelroy (1978):

> Marx estimated that approximately 98 percent of all shipping losses in the western hemisphere prior to 1825 occurred in less than 10 m of water. Coastal Environment Inc.'s authors follow this proposition. . . . Muckelroy suggested that the 10 m boundary probably underestimated the potential for deepwater archaeology. Bascom concluded from a study of 19th century losses at Lloyds of London that about 20 percent of all sinkings occur away from the coast. This figure probably better approximates the correct order of magnitude from all sinkings in the open sea at any period. The data in this study [Garrison et al. 1989] support Bascom. An inspection of our shipwreck distribution plots [within the Gulf of Mexico] shows that 75 percent of shipwrecks occur in nearshore waters and the remainder in the open sea (Garrison et al. 1989).

The employment of a predictive model can help differentiate the potential for submerged cultural resources within the various Alternatives by applying additional criteria. Larry Pierson, who developed the predictive model, suggests that:

> Predicting the occurrence of shipwrecks . . . is a relatively complicated matter. Certainly where ship traffic is concentrated there will be more losses. When concentrated traffic occurs near navigational hazards such as islands, headlands, or submerged rocks, an increased frequency of ship losses can be expected. If these factors coincide with areas which have a high preponderance for the occurrence of foul weather or fog, an even greater frequency of accidents can be expected. But wrecks may occur even where traffic is not concentrated or when the weather is clear, i.e., ships have been lost at sea in clear, calm weather (Pierson 1987).

Pierson developed a predictive model based on a point system, where the higher point value assumes a higher probability for submerged cultural resources. The predictive model assigns points to various criteria including ports/anchorage, obstructions/hazards, shipping routes, and known archaeological sites.

The predictive model criteria and point system includes:

- Port or anchorage* = 1 point
- Obstruction or other hazard** = 1 point

- Designated shipping route*** = 1 point
- One or fewer shipwreck sites per km² = 1 point
- One or two shipwreck sites per km² = 2 points
- More than two shipwreck sites per km² = 3 points

* Approach as delineated by NOAA as of 1980.
** Within view of a lighthouse, buoy, or other warning device.
*** Within the confines of the designated route.

These point criteria can be applied to each individual Alternative within the current project area. These criteria assume that there is a higher probability of a vessel loss near a port/anchorage, near an obstruction/navigational hazard, or near a designated shipping route. This model also takes into account that if other known shipwreck sites are nearby, the probability increases for additional sites to be located in that area.

After applying the designated criteria to each of the Alternatives within the project area and adding the results, a total point value can be assigned. The higher the total points, the greater the likelihood for submerged cultural resources within that area. Results of the predictive model indicate that the Alternatives have an overall low to moderate probability for submerged cultural resources (**Table 6**).

Table 6. Predictive Model Results.

Port or Anchorage	Obstruction or Other Hazard	Designated Shipping Route	One or Fewer Shipwrecks per km²	One or Two Shipwrecks per km²	More than Two Shipwrecks per km²	Total
Alternative 8						
0	0	0	1	0	0	**1**
Alternative 14						
0	0	0	1	0	0	**1**
Alternative 15						
0	0	0	1	0	0	**1**
Alternative 17						
0	0	1	1	0	0	**2**
Alternative 19						
0	0	1	1	0	0	**2**

Alternatives 8, 14, and 15 have a lower potential for submerged cultural resources due to their primary location within small perennial drainages that were never designated shipping routes or heavily trafficked water bodies. Alternatives 17 and 19 have a moderate probability due to their inclusion of East Bay and its history of marine traffic.

CONCLUSION AND RECOMMENDATIONS

SEARCH conducted the current maritime study on behalf of FDOT District 3 in order to identify any submerged cultural resources that are listed, or may be eligible for listing, in the NRHP. The FMSF database was reviewed for any previous surveys or previously recorded resources. In addition, SEARCH conducted a review of in-house databases relative to potential submerged cultural resources within the APE. The databases reviewed include:

- NOAA Automated Wreck and Obstruction Information System (AWOIS);
- NOAA's Electronic Navigational Charts;
- 2006 NOAA Aids to Navigations (NavAids) and 2007 US Coast Guard (USCG) Hazards to Navigation database; and
- Global Maritime Wrecks Database (GMWD).

After completing the database review, SEARCH conducted a predictive model based on archaeological, navigational, and other relevant data. Each Alternative was analyzed for its overall potential to contain submerged cultural resources.

Predictive models were first developed by terrestrial archaeologists interested in identifying the location of human habitations based on the analysis of environmental conditions within a given region. Archaeologists postulated that analyzing conditions around known sites could establish a set of variables that could be applied elsewhere to assist in locating new sites. Others believe that predictive modeling has severe limitations and that regulatory agencies will use these "models to authorize disturbance and development of substantial areas under the potentially erroneous assumption that they contain no significant archaeological sites" (Mather and Watts 2002). Mather and Watts address the limitations of predictive models with regard to shipwrecks:

> If predictive modeling on land is contentious, it promises to be even more so underwater. The location of shipwrecks is clearly not behaviorally based in the same way as human settlement. The human decision-making component for underwater sites is considerably more limited; a captain's choice about where to sink is marginal at best. Neither do we know all the factors that determine shipwreck locations. Many stretches of water are dynamic and change over time. Ships are mobile. Also, there may be a considerable array of random factors such as storms, fires, and battles that help determine the patterns of vessel losses. Given the historically high usage of some stretches of water, it may be difficult to eliminate the possibility of shipwrecks in any unsurveyed or undisturbed areas (Mather and Watts 2002).

Suggestions to alleviate the nonconformity of shipwreck patterns include a GIS-based archaeological sensitivity analysis as an alternative. Establishment of GIS-based sensitivity zones is useful to cultural resource managers who could quickly identify unsurveyed areas that may contain submerged cultural resources. Mather and Watts suggest that:

> By overlaying data such as historic and archaeological sites, hazards to navigation, dredging activity, and remote sensing data, researchers can divide water systems into sensitivity zones. The advantage of archaeological sensitivity analysis is that it correlates directly with known data. Areas of highest sensitivity incorporate known archaeological sites; areas of lowest sensitivity have been surveyed by reputable researchers and are known to contain no archaeological sites. The unknown remains unknown, and no probability ratings are assigned to areas as a result of archaeological sensitivity analysis (Mather and Watts 2002).

With this said, results from the database review and subsequent application of a predictive model identified the potential for submerged cultural resources within each of the five Alternatives. Review of available databases identified one known wreck and no obstructions, archaeological sites, occurrences, or sites marked as “unknown.” The only reported wreck was identified in the East Bay within the APE of Alternatives 17 and 19. Subsequently, Alternatives 17 and 19 have been identified as having a moderate potential for submerged cultural resources. Application of the predictive model indicates an overall low potential for submerged cultural resources within Alternatives 8, 14, and 15

Based on the background review and the predictive model, SEARCH recommends that if Alternative 17 or 19 is selected as the preferred Alternative, a marine remote-sensing survey should be conducted for the East Bay water crossing. This crossing contains the potential for submerged cultural resources due to its history as a navigable waterway and the presence of one reported modern wreck. None of the other water crossings were identified as containing potential for submerged cultural resources. Due to the low potential for submerged cultural resources on the remaining Alternatives, SEARCH recommends no further work for Alternatives 8, 14, and 15.

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n.d. Electronic document, http://www.nauticalcharts.noaa.gov/mcd/enc/.

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US Coast Guard Hazards to Navigation
2007 Database provided by Services Unlimited, Hammond, Louisiana. On file, Services Unlimited, Hammond, Louisiana.